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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Dirk Nuber

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EXAMINER

JUETTNER, ANDREW MARK

ART UNIT

PAPER NUMBER

3749

NOTIFICATION DATE

DELIVERY MODE

07/14/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/540,436	Applicant(s) NUBER ET AL.	
	Examiner ANDREW M. JUETTNER	Art Unit 3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/24/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-13,15-17 and 19-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 9-13 is/are allowed.
- 6) ☒ Claim(s) 15-17 and 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/22/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The following is Final Office action in response to communications received April 24, 2008. Claims 8, 14, and 18 have been cancelled. Claims 1, 4-7, 11-13, 15-17, 19-22 have been amended. Claims 23-25 have been added. Therefore, claims 1-7, 9-13, 15-17, and 19-25 are pending and addressed below.

Information Disclosure Statement

2. Examiner notes that the applicant did provide a copy of the July 23, 2003 abstract that was listed on June 22, 2005 filed Information Disclosure Statement (IDS). Examiner has considered the abstract.

Response to Amendment

3. Applicant's amendments to the drawings were sufficient to overcome the previous objection to the drawings. Applicant's amendments to the claims were sufficient to overcome the 35 U.S.C. 112, second paragraph, rejections set forth in the previous action.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 recites that the gas supply tube is "central." However, it is unclear from the recitation what the gas supply tube is "central" of. Is it central of the mixing chamber

or some other part of the reactor? Or is it merely an indication of the importance of the gas supply tube? For the purposes of applying art the claim is being interpreted as reciting that the gas supply tube is centrally located in the mixing chamber.

Claim 24 recites the limitation "the gas supply tube" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. For the purposes of applying art the claim is interpreted as reciting that the plant of claim 15 further comprises a gas supply tube that extends upwards vertically.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 15-17, 20, and 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,505,907 to Hiltumen et al. (Hiltumen).

In Reference to Claim 15

Hiltumen teaches:

A plant for the heat treatment of fine-grained solids comprising a reactor (10) constituting a fluidized bed reactor (10 has fluidized bed 14) for the heat treatment, wherein the reactor has a gas supply system (inlet duct or conduit 16) which is formed such that gas flowing through the gas supply system entrains solids from a stationary annular fluidized bed (column 4, lines 40-44) into the mixing chamber (column 4, lines 46-47), the plant further comprising a separator downstream of the reactor (separator

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28 is located downstream of the reactor as the flow pattern of the solids passes from reactor 12 through mixing chamber 22 to separator 28) and a solids conduit (36) leading from the separator to the annular fluidized bed reactor (see fig. 1).

In Reference to Claim 16

Hiltumen teaches:

The plant as claimed in claim 15 (see rejection of claim 15 above), wherein the gas supply system has a gas supply tube extending upwards from the lower region of the reactor into the mixing chamber of the reactor (16 extends into section 22).

In Reference to Claim 17

Hiltumen teaches:

The plant as claimed in claim 15 (see rejection of claim 15 above), wherein the gas supply system has a gas supply tube (16) arranged approximately centrally with reference to the cross-sectional area of the reactor (see figs. 1-4; column 4, line 4-5).

In Reference to Claim 20

Hiltumen teaches:

The plant as claimed in claim 15 (see rejection of claim 15 above), wherein provided in a chamber of the reactor is a gas distributor (52) which divides the chamber into an upper annular fluidized bed and a lower gas distributor (see figs. 1-4), and

wherein the gas distributor is connected to a supply conduit for fluidizing gas (see figs. 1-3, arrow indicates the flow of the fluidizing gas).

In Reference to Claim 24

Hiltumen teaches:

The plant as claimed in claim 15 (see rejection of claim 15 above), wherein the gas supply tube extends upwards vertically (duct 16 extends vertically, see figs. 1-3).

In Reference to Claim 25

Hiltumen teaches:

The plant as claimed in claim 15 (see rejection of claim 15 above), wherein the separator (28) has a solids conduit (36) leading to a cooling system (duct 36 leads to heat exchangers 44, which cool the solids).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiltumen in view of US Patent 3,884,620 to Rammler (Rammler).

Hiltumen teaches the plant as claimed in claim 15 (see rejection of claim 15 above), but does not disclose wherein provided upstream of the reactor is a combustion chamber with supply conduits for fuel, oxygen or heated gas, the exhaust gas of which

is passed into a gas supply tube. Hiltumen does disclose that hot gas 48 is introduced through inlet duct 16 (column 4, lines 39-41).

Rammler teaches a fluidized bed reactor system (see fig. 1) wherein provided upstream of the reactor is a combustion chamber (12) with supply conduits for fuel, oxygen or heated gas (see fig. 1; column 5, lines 14-21 describing combustion chamber 12 as like combustion chamber 5 described at column 4, lines 40-48), the exhaust gas of which is passed into the gas supply tube (column 5, lines 14-15).

It would have been obvious to one having ordinary skill in the art at the time of the invention to add the combustion chamber of Rammler to the fluidized bed reactor of Hiltumen in order to produce the desired hot gas flow to be utilized in the Hiltumen reactor.

10. Claims 19 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Hiltumen in view of US Patent 3,995,987 to MacAskill (MacAskill).

In Reference to Claim 19

Hiltumen teaches the plant as claimed in claim 15 (see rejection of claim 15 above), but does not disclose wherein a solids conduit leading from the annular stationary fluidized bed of the reactor to the cooling system is provided.

MacAskill teaches a calcining plant (see figure) wherein a solids conduit (22) leading from the annular stationary fluidized bed of the reactor (2) to the cooling system (3) is provided.

It would have been obvious to one having ordinary skill in the art at the time of the invention to add the solids conduit leading to a cooling system of MacAskill to the

fluidized bed reactor of Hiltumen in order to remove/recover more heat from the particles discharged from the fluidized bed through conduit 56.

In Reference to Claim 22

Hiltumen teaches the plant as claimed in claim 15 (see rejection of claim 15 above), but does not disclose wherein provided downstream of the reactor is a cooling system comprising direct and indirect cooling stages.

MacAskill teaches a calcining plant (see figure) wherein provided downstream of the reactor is a cooling system (fluidized bed heat exchanger 3, cyclone separators 6, 6', 7), comprising direct (fluidized bed heat exchanger 3 uses cooler air introduced through 30 to cool and fluidize) and indirect (reactor air introduced through 32 receives heat from particles before being used as fluidizing gas for reactors) cooling stages.

It would have been obvious to one having ordinary skill in the art at the time of the invention to add the cooling system of MacAskill to the fluidized bed reactor of Hiltumen in order to remove/recover heat from the fluidized bed particles discharged from the fluidized bed reactor.

Allowable Subject Matter

11. Claims 1-7, 9-13, and 23 are allowed.
12. Claim 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
13. The following is a statement of reasons for the indication of allowable subject matter: Claim 1 recites specific Froude numbers for the gas supply tube, annular

fluidized bed, and mixing chamber. Claim 1 was previously rejected under 35 U.S.C. 102(e) in view of US Publication 2007/0137435 to Orth et al. (Orth) with a critical date of December 1, 2003 as applicant has noted on page 11 of the April 24, 2008 response. Applicant has claimed priority to a German Patent Application No. DE 10260741.9 filed December 23, 2002. Applicant has perfected priority to the December 23, 2002 by filing a certified copy of the German Patent Application along with an official translation which was filed on 4/24/2008. The German Patent Application provides support to all of the claimed elements of claim 1. Therefore, the Orth publication no longer qualifies as prior art under 35 U.S.C. 102(e). No other prior art reference teaches the specific Froude numbers recited by claim 1. Therefore, claim 1 is allowable along with all its dependent claims over the prior art.

Response to Arguments

14. Applicant's arguments, see page 11-12 regarding the rejections under Orth, filed 4/24/2008, with respect to claims 1-14 have been fully considered and are persuasive. The rejection of claims 1-14 has been withdrawn.

15. Applicant's arguments filed 4/24/2008 regarding claim 15 have been fully considered but they are not persuasive. Applicant argues that Hiltunen does not teach a separator downstream of the reactor. Examiner disagrees. The separator is downstream of the fluidized bed and mixing chamber where the heat treatment reaction occurs. Solids flow from the fluidized bed to the mixing chamber and then to the separator. The separator is therefore downstream as the flow of the solids shows regardless of whether it is integrated with the rest of the system or an independent

body. Applicant argues that it would not be obvious to modify Hiltumen to include and downstream separator. As the examiner believes that the separator is already downstream of the reactor, applicant's argument is moot. Examiner does note that the prior art does show that it is common to have separators that are not integrated with the reaction chamber.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **ANDREW M. JUETTNER** whose telephone number is (571)270-5053. The examiner can normally be reached on Monday through Friday 7:30am to 5pm Est..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMJ

/A. M. J./

Examiner, Art Unit 3749

/Steven B. McAllister/

Supervisory Patent Examiner, Art Unit 3749